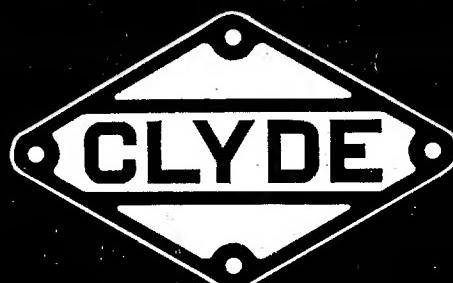
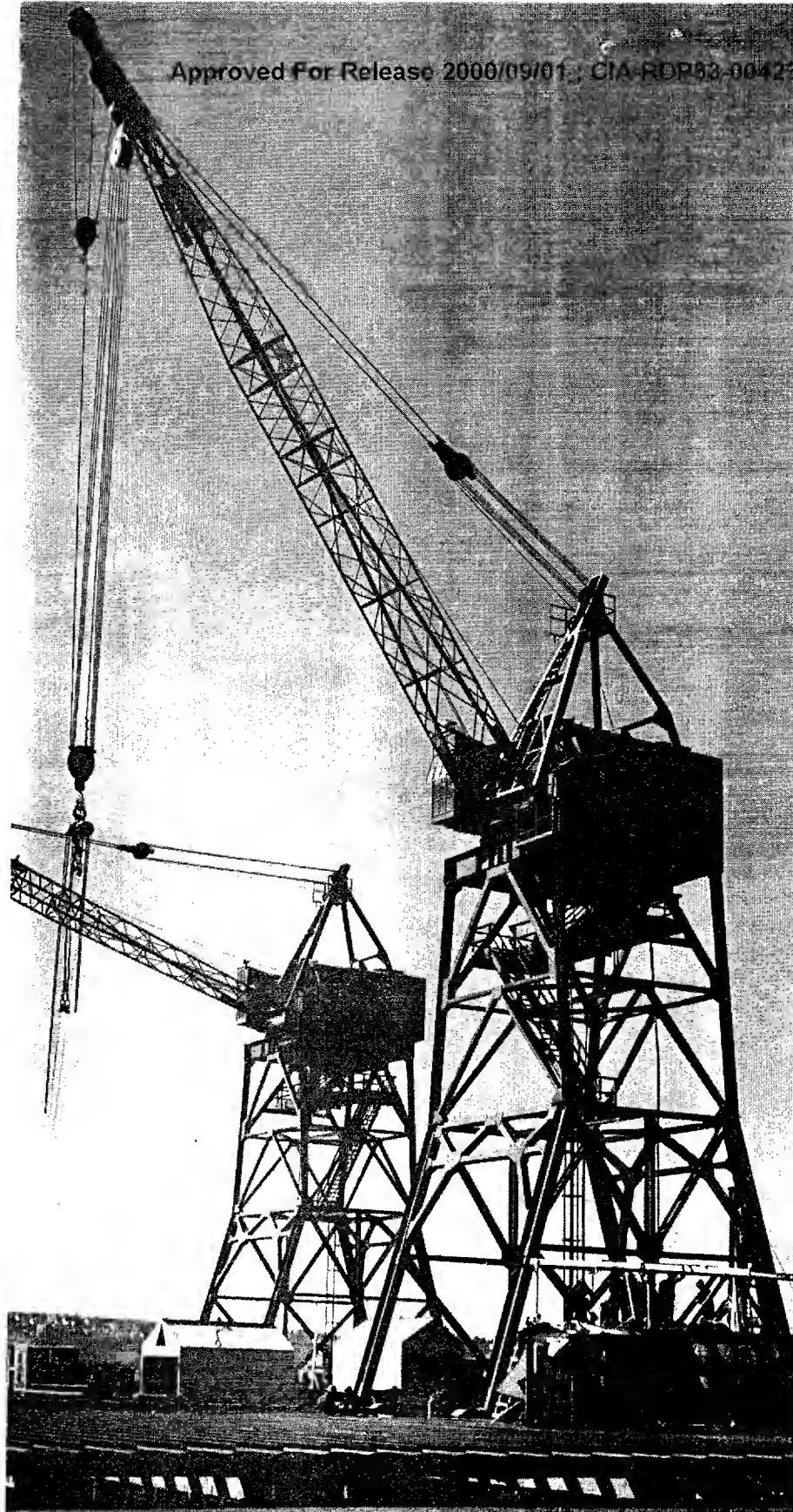


Clyde





## BULLETIN M-12

### INTRODUCTION

Clyde Whirleys are traveling, full-revolving, long reaching, heavy duty machines specially engineered for rapid and efficient handling of materials by bucket, hook or magnet.

It is the intent of this bulletin to illustrate some of the many applications of Clyde Whirleys and to point out the advantages of the Clyde design. Years of developing and perfecting . . . years of careful analyzing of the customer's problems have resulted in a line of Whirleys of superior engineering principles with sound and practical construction features.

Clyde Whirleys are manufactured in nine standard sizes with lifting capacities up to 146,600 pounds at 40 foot radius or 27,700 pounds at 150 foot radius. The chart on page 17 lists normal capacities of standard models at various boom radius.

Our staff of skilled technicians will gladly make recommendations and provide complete specifications for the Whirley best suited for your particular needs. For your convenience a page is provided listing the information required for a quotation.

We reserve the right to make any changes in the details of construction and design of any equipment shown in this bulletin, which in our opinion will improve it, regardless of description and illustrations used.

# CLYDE IRON WORKS, INC.

DULUTH, MINNESOTA

Subsidiary of Bethlehem Steel Corporation

Approved For Release 2000/09/01 : CIA-RDP83-00423R000500220002-0

STARTS A JOB...

...AND FINISHES IT

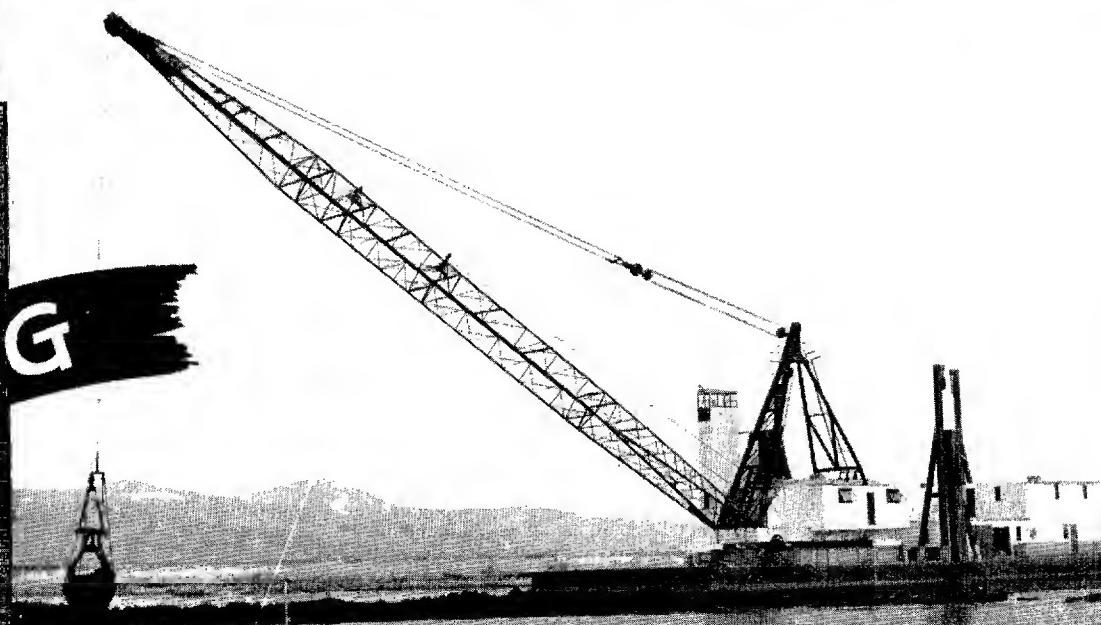
Approved For Release 2000/09/01 : CIA-RDP83-00423R000500220002-0

Approved For Release 2000/09/01 : CIA-RDP83-0423R00050002000001

REHANDLING



DIGGING



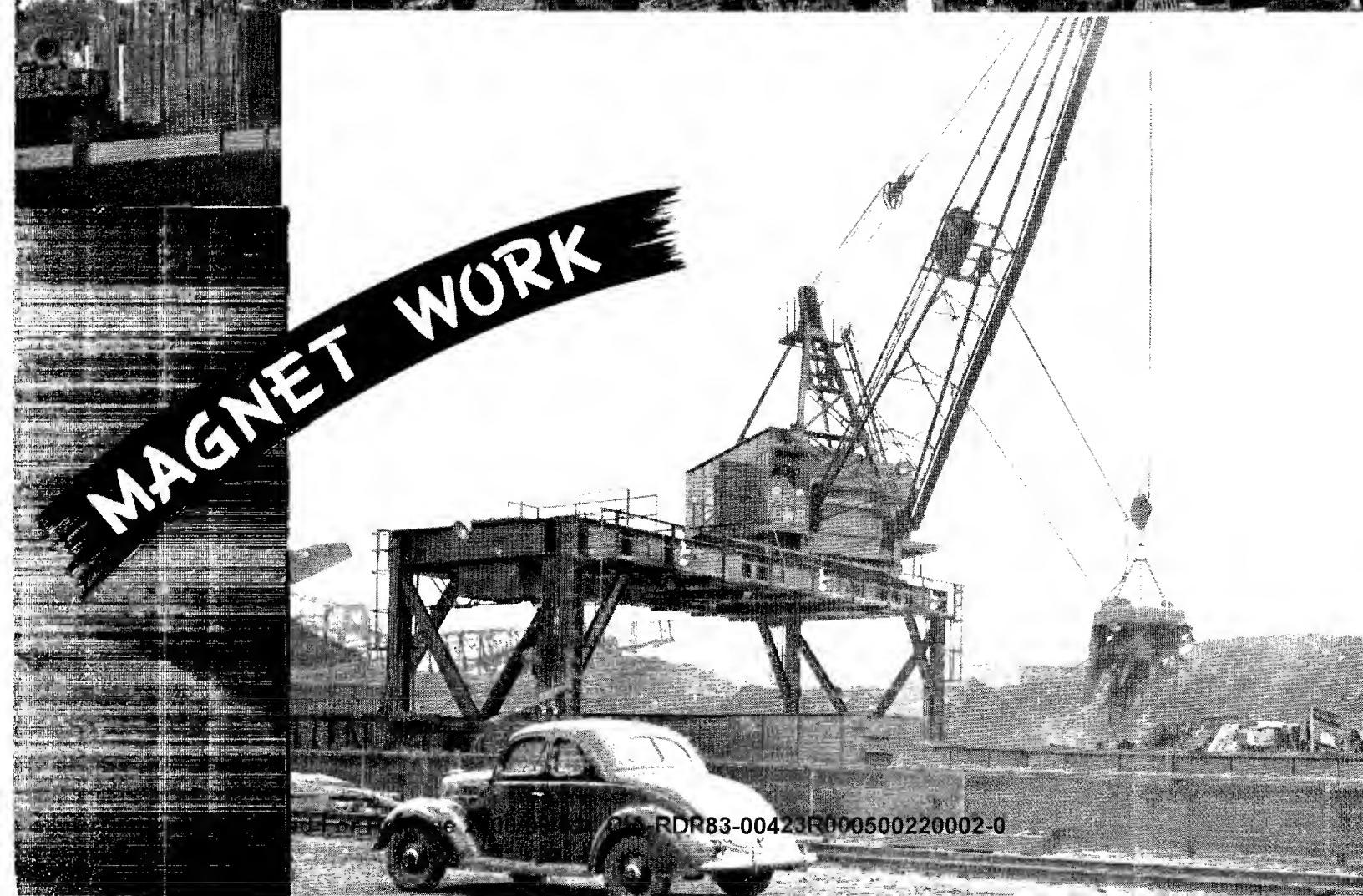
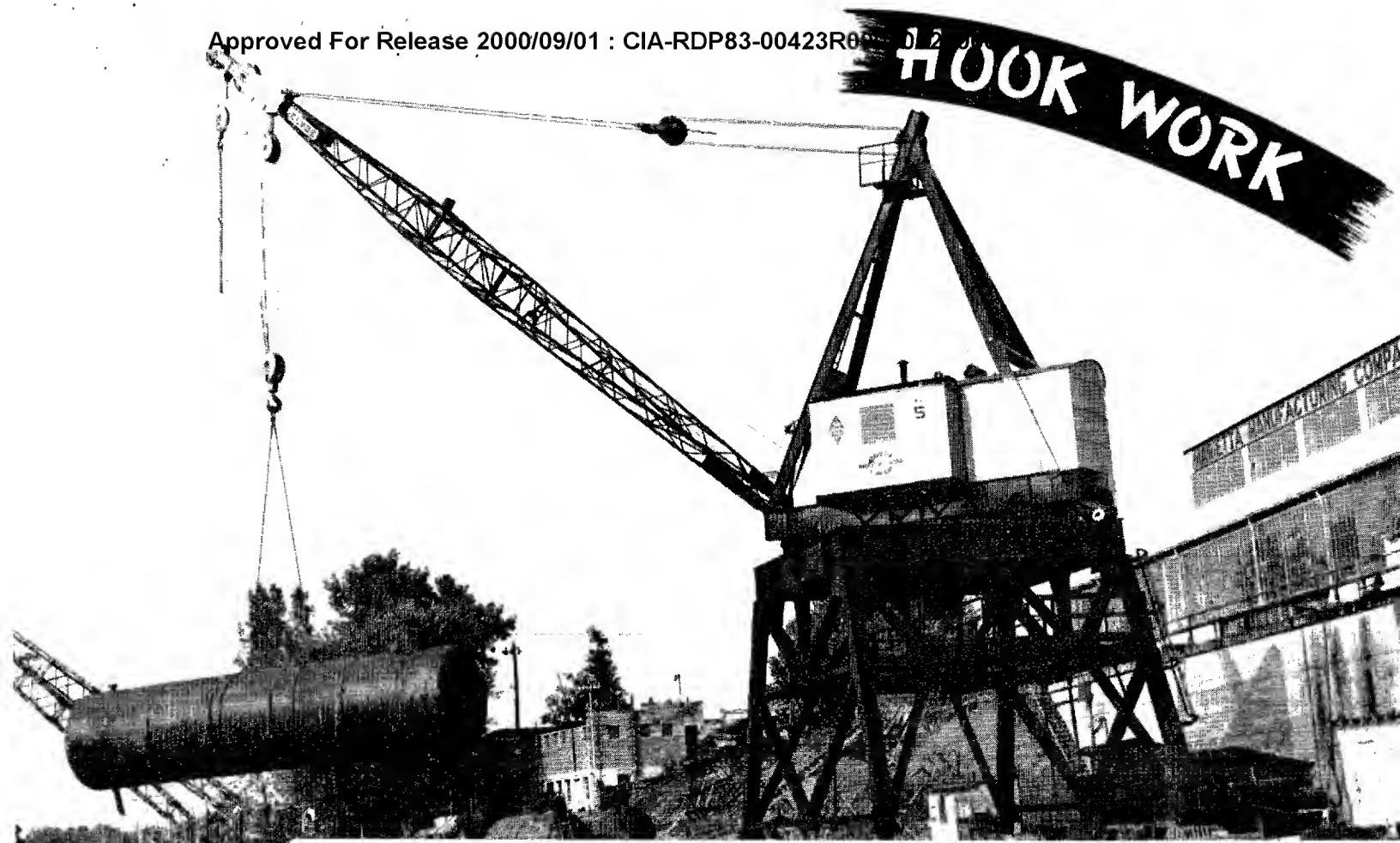
Approved For Release 2000/09/01 : CIA-RDP83-0423R00050002000001

PLACES CONCRETE

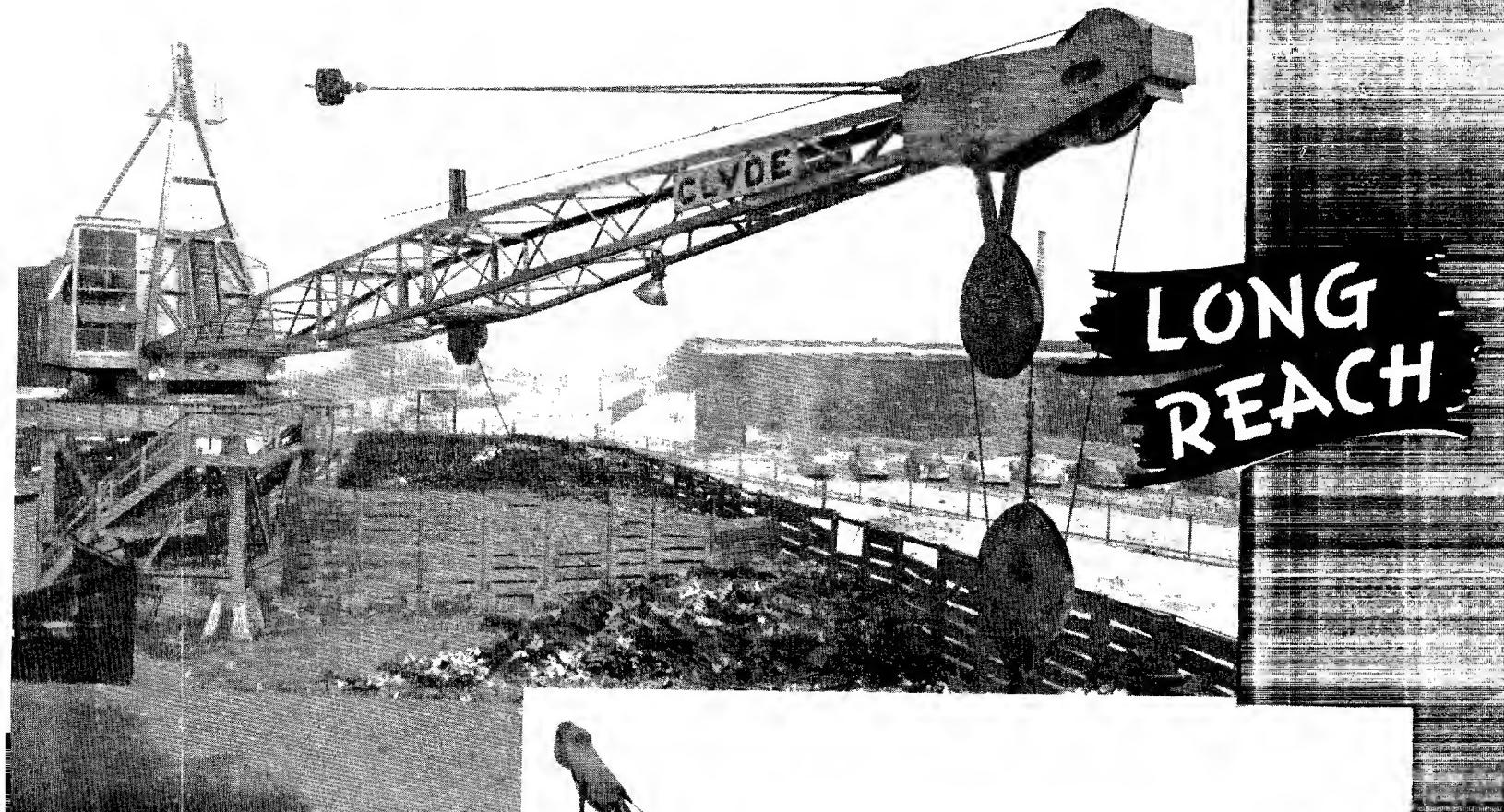


HANDLES FORMS





RDR83-00423R000500220002-0



LONG  
REACH



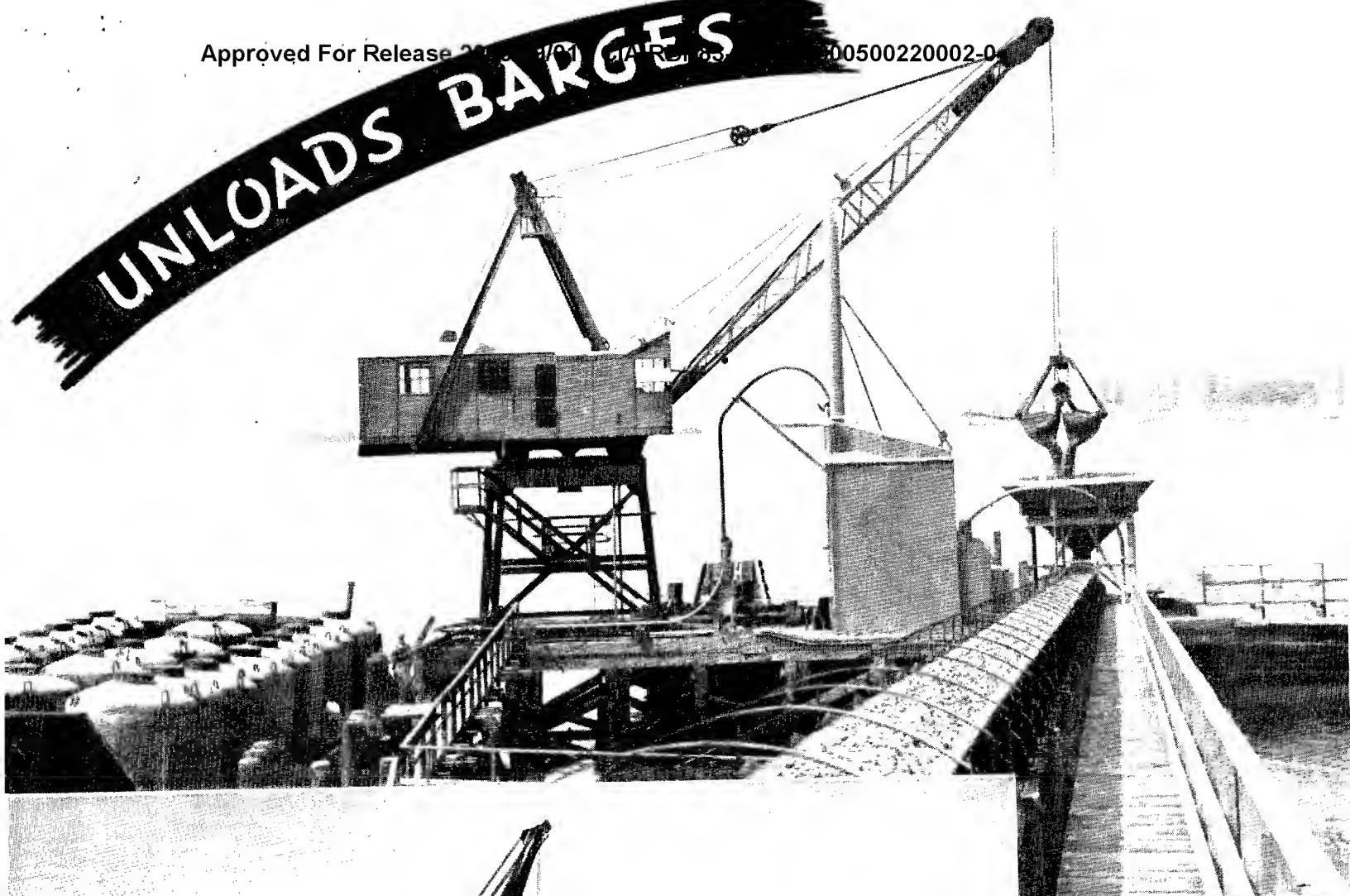
HIGH CAPACITY



Approved For Release 2014/01/01 : GATE 65

00500220002-0

UNLOADS BARGES



UNLOADS CARS



M.P.  
67

MISSOURI  
PACIFIC  
LINES

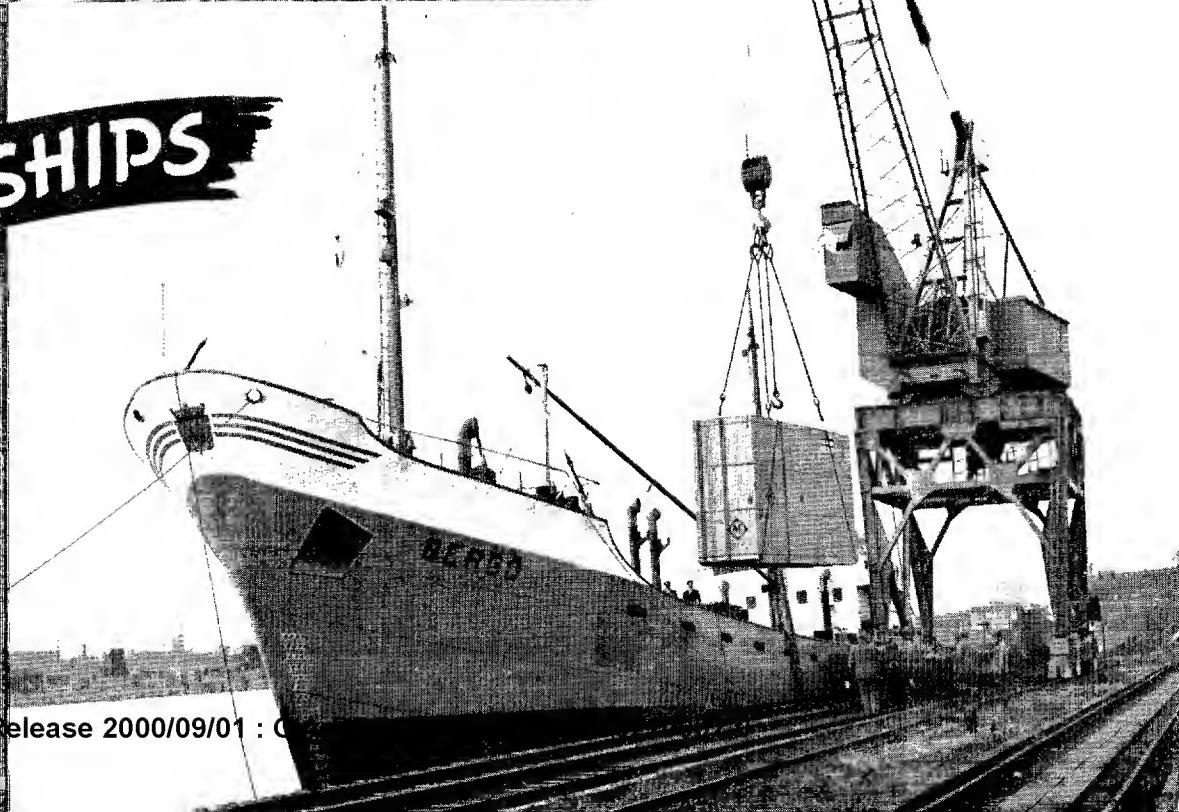
DE 320 1000 195021 1000

GS

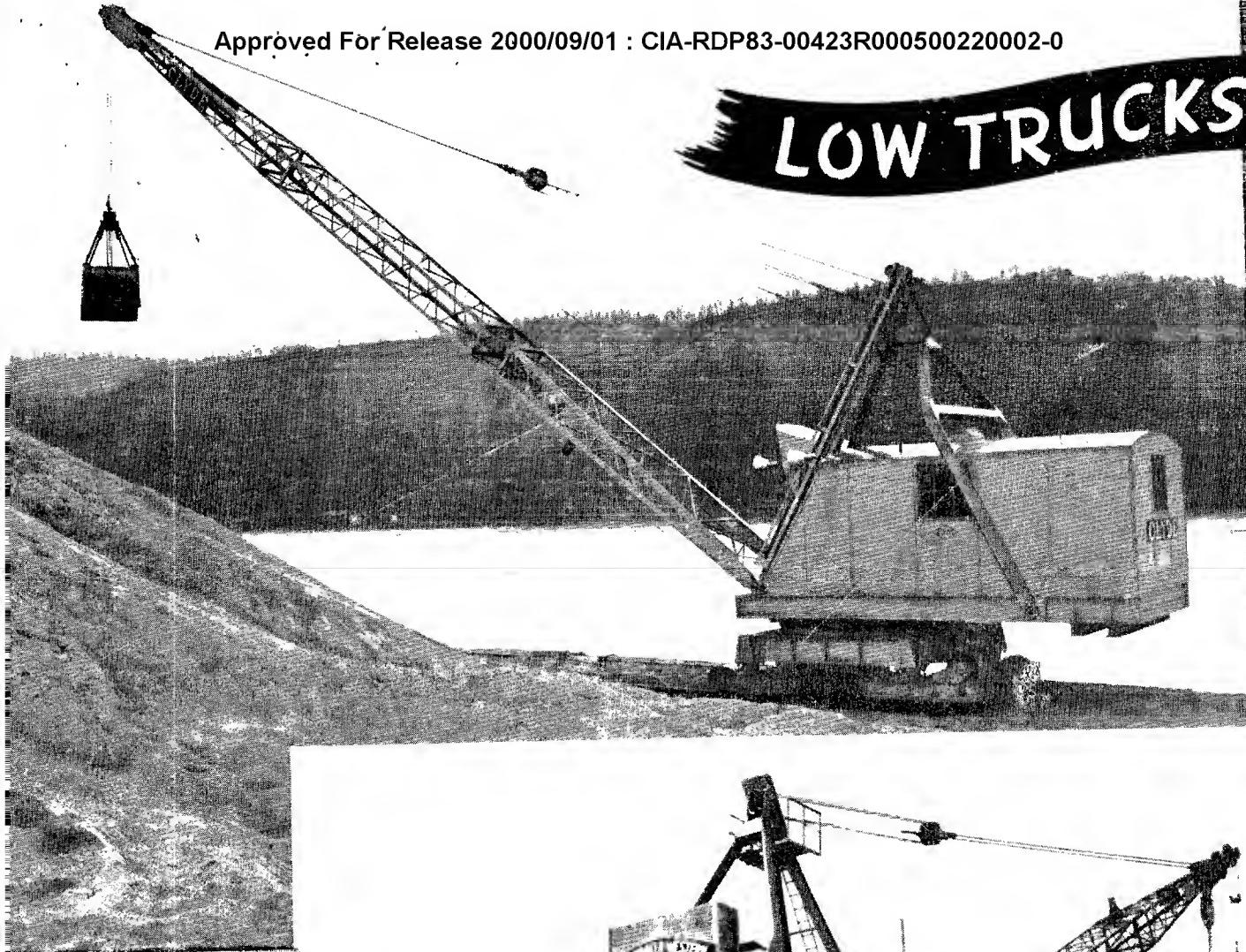
LOADS TRAINS



LOADS SHIPS

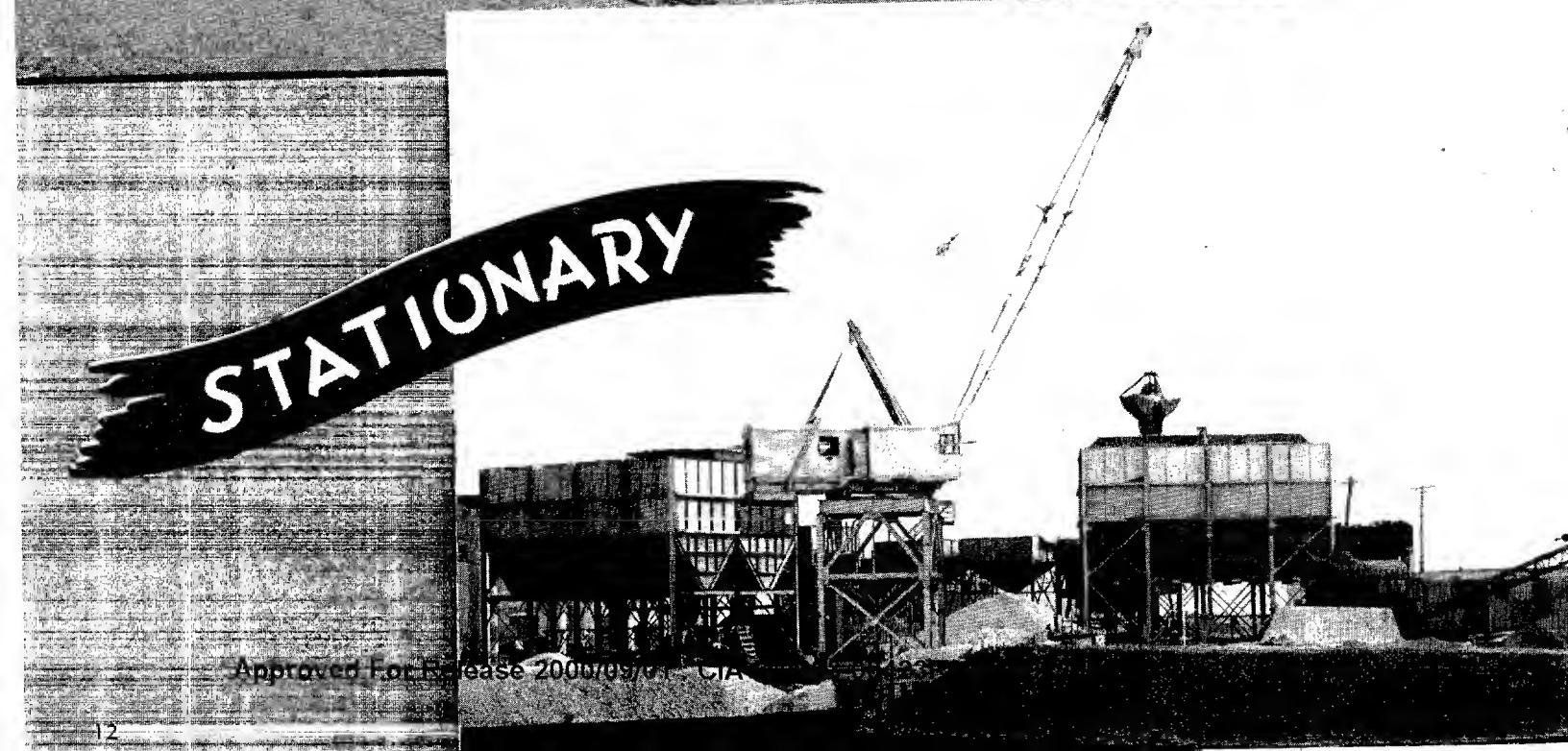
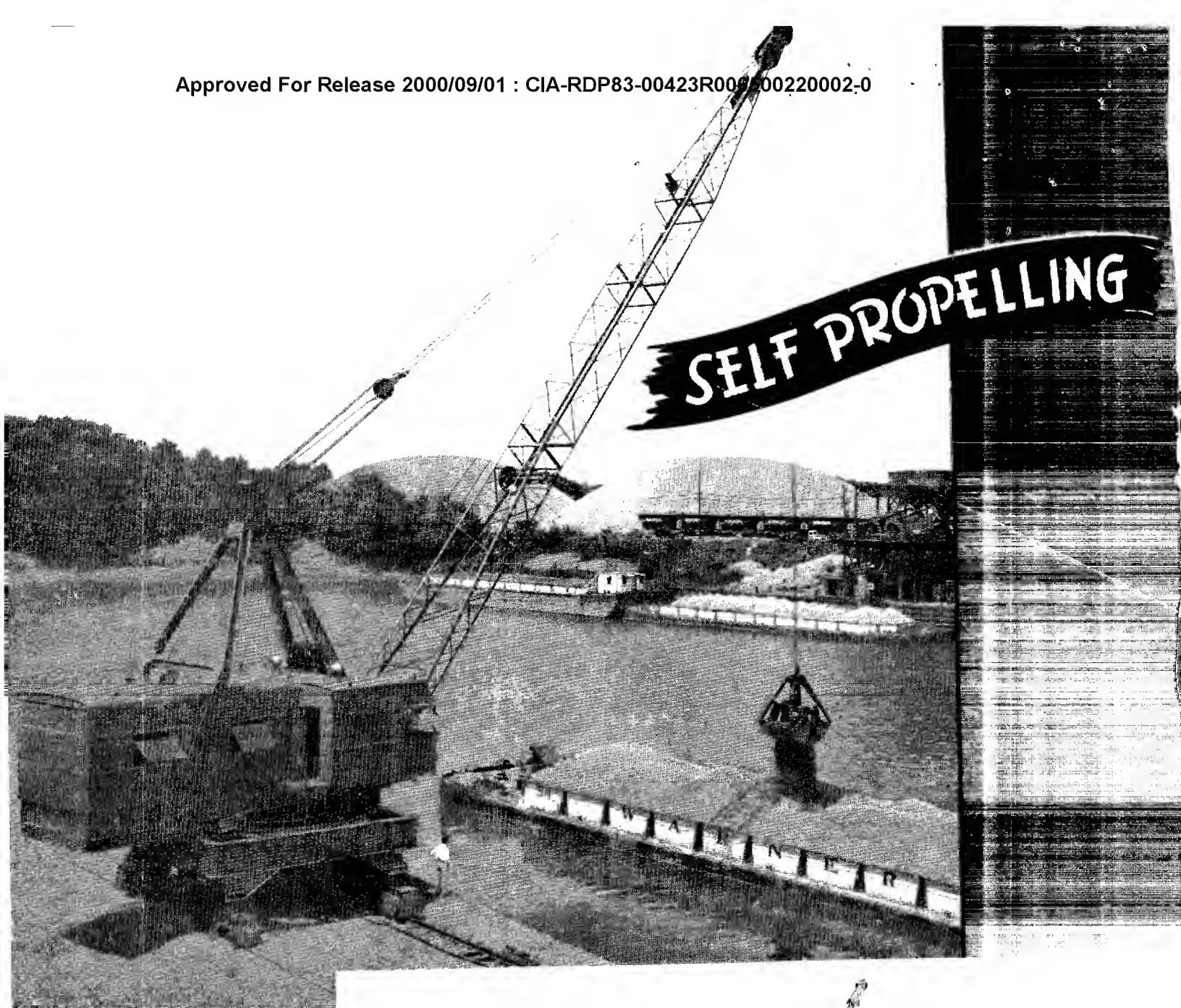


LOW TRUCKS

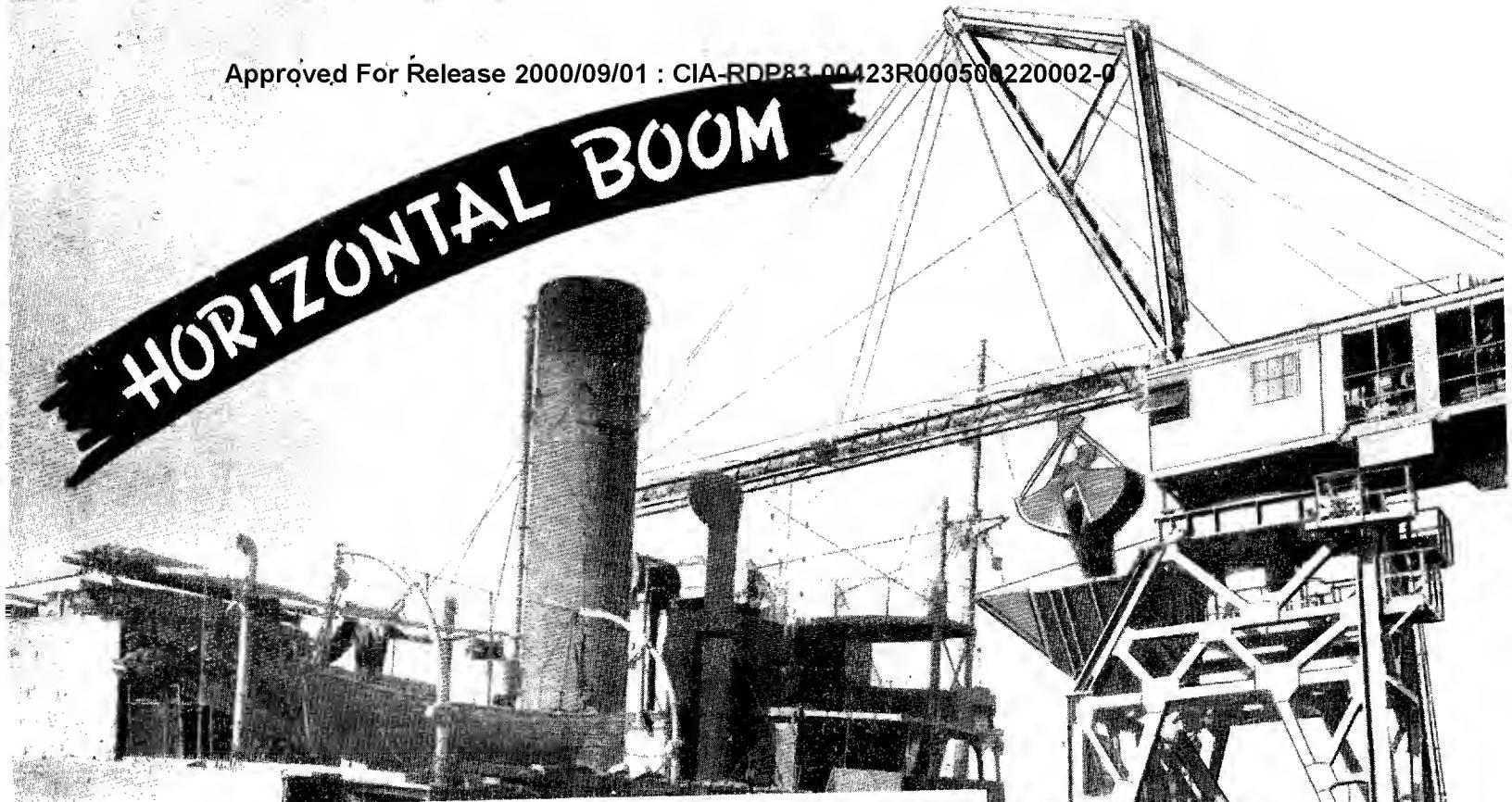


HIGH GANTRY





HORIZONTAL BOOM



LEVEL  
LUFFING



GANTRY MOUNTED



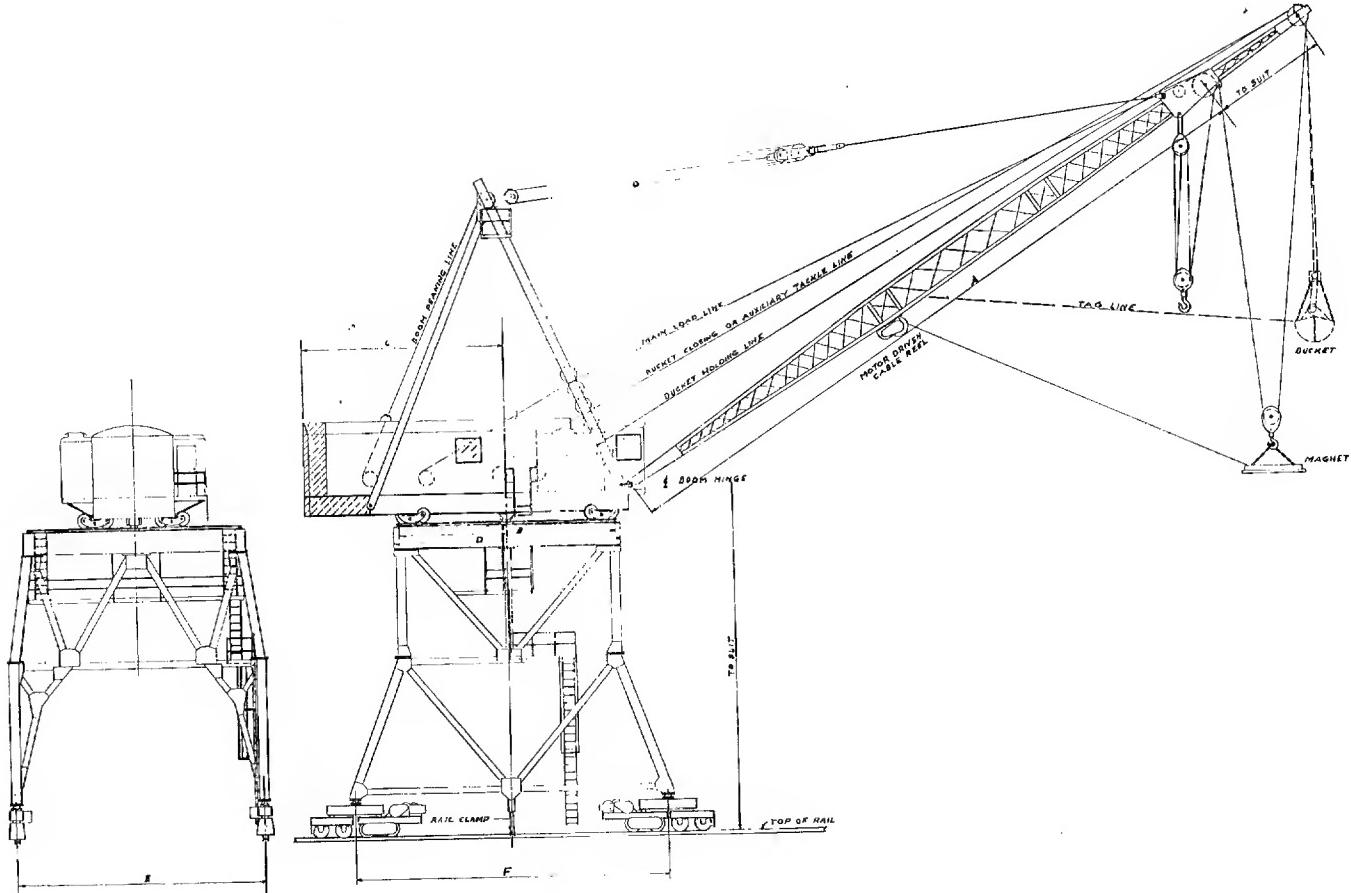
BARGE MOUNTED

GOOD  
TEAM WORK



PERFECT CONTROL

# CLYDE WHIRLEY SPECIFICATION DATA



| MODEL                         | 6     | 10   | 14   | 17   | 20   |
|-------------------------------|-------|------|------|------|------|
| Maximum length of boom, ft.   | A 60  | 90   | 100  | 110  | 120  |
| Diameter of rail circle, ft.  | B 6   | 10   | 14   | 17   | 20   |
| Tail swing, ft.               | C 14  | 18   | 20   | 22   | 24   |
| Width of lower frame, ft.-in. | D 7-0 | 10-6 | 14-6 | 17-6 | 20-6 |
| Minimum track centers, ft.    | E 6   | 10   | 14   | 17   | 20   |
| Center to center trucks, ft.  | F 15  | 20   | 26   | 29   | 36   |

| MODEL                         | 24     | S24  | 28   | S28  |
|-------------------------------|--------|------|------|------|
| Maximum length of boom, ft.   | A 130  | 130  | 140  | 140  |
| Diameter of rail circle, ft.  | B 24   | 24   | 28   | 28   |
| Tail swing, ft.               | C 26   | 26   | 28   | 28   |
| Width of lower frame, ft.-in. | D 24-6 | 24-6 | 28-6 | 28-6 |
| Minimum track centers, ft.    | E 24   | 24   | 28   | 28   |
| Center to center trucks, ft.  | F 36   | 36   | 40   | 40   |

**CLYDE WHIRLEY CAPACITY CHART**

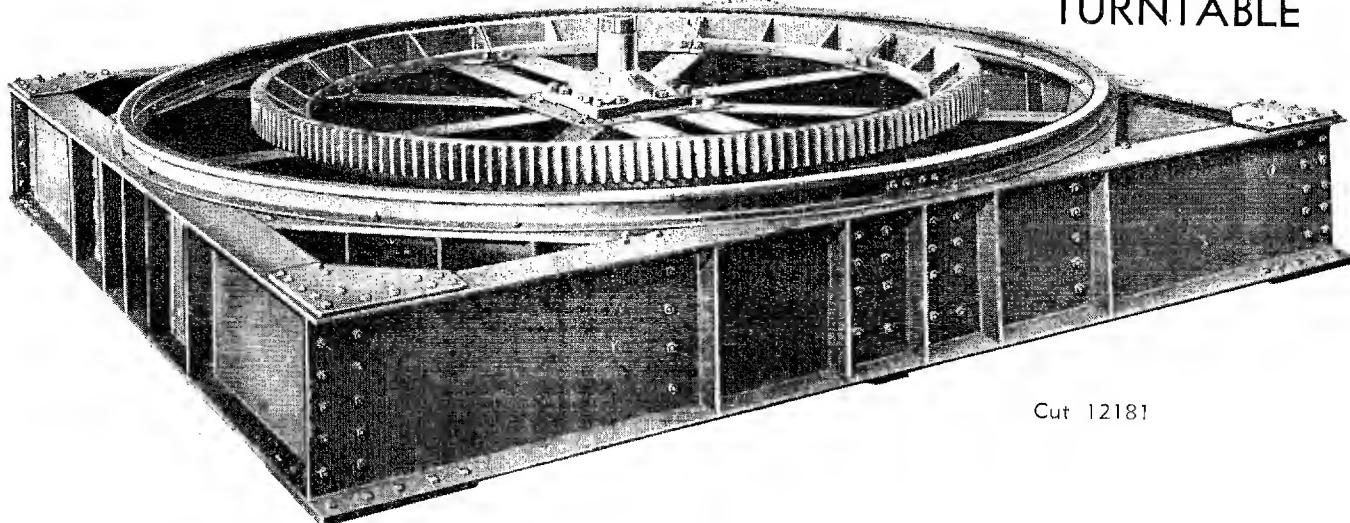
|     | MODEL 6     |              |       | MODEL 10    |              |       | MODEL 14    |              |       | MODEL 17    |              |       | MODEL 20     |              |              |              |              |              |
|-----|-------------|--------------|-------|-------------|--------------|-------|-------------|--------------|-------|-------------|--------------|-------|--------------|--------------|--------------|--------------|--------------|--------------|
|     | BOOM LENGTH |              |       | BOOM LENGTH |              |       | BOOM LENGTH |              |       | BOOM LENGTH |              |       | BOOM LENGTH  |              |              |              |              |              |
|     | 40          | 50           | 60    | 50          | 70           | 90    | 60          | 80           | 100   | 70          | 90           | 110   | 80           | 100          | 120          |              |              |              |
| 20  | 25200       | <b>24700</b> | 24200 | 40800       | <b>40000</b> |       | 63000       | <b>62000</b> |       |             |              |       |              |              |              |              |              |              |
| 25  | 20200       | <b>19700</b> | 19200 | 32100       | <b>31300</b> | 30500 | 51300       | <b>50300</b> | 49300 | 66400       | <b>65000</b> |       | 86800        | <b>85000</b> |              |              |              |              |
| 30  | 16700       | <b>16200</b> | 15700 | 25500       | <b>14700</b> | 23900 | 42300       | <b>41300</b> | 40300 | 56400       | <b>55000</b> | 53600 | 71400        | <b>69700</b> | 67900        |              |              |              |
| 35  | 14200       | <b>13700</b> | 13200 | 20300       | <b>19500</b> | 18700 | 35500       | <b>34500</b> | 33500 | 48000       | <b>47000</b> | 45600 | 61700        | <b>60000</b> | 58300        |              |              |              |
| 40  | 12200       | <b>11700</b> | 11200 | 16500       | <b>15700</b> | 14900 | 30300       | <b>29300</b> | 28300 | 42300       | <b>41000</b> | 39700 | 54100        | <b>52500</b> | 50800        |              |              |              |
| 45  |             | <b>10200</b> | 9700  | 13800       | <b>13000</b> | 12200 | 26000       | <b>25000</b> | 24000 | 37800       | <b>36500</b> | 35200 | 48600        | <b>47000</b> | 45400        |              |              |              |
| 50  |             | <b>9000</b>  | 8500  | 11800       | <b>11000</b> | 10200 |             |              |       |             |              |       |              |              |              |              |              |              |
| 55  |             |              | 7500  |             | <b>9500</b>  | 8700  | 22300       | <b>21300</b> | 20300 | 33800       | <b>32500</b> | 31200 | 43800        | <b>42300</b> | 40700        |              |              |              |
| 60  |             |              | 6600  |             | <b>8100</b>  | 7300  | 19300       | <b>18300</b> | 17300 | 30500       | <b>29300</b> | 28100 | 39800        | <b>38300</b> | 36800        |              |              |              |
| 65  |             |              |       |             | <b>6900</b>  | 6100  |             |              |       | 16000       | <b>15000</b> | 27700 | <b>26500</b> | 25300        | 35900        | <b>34500</b> | 33000        |              |
| 70  |             |              |       |             | <b>6000</b>  | 5200  |             |              |       | 14300       | <b>13300</b> | 25200 | <b>24000</b> | 22800        | 33100        | <b>31700</b> | 30200        |              |
| 75  |             |              |       |             |              | 4400  |             |              |       | 12700       | <b>11700</b> | 22400 | <b>21200</b> | 20000        | 30600        | <b>29300</b> | 27800        |              |
| 80  |             |              |       |             |              | 3600  |             |              |       | 11500       | <b>10500</b> |       |              | 19500        | <b>18400</b> | 28200        | <b>26900</b> | 25300        |
| 85  |             |              |       |             |              | 3000  |             |              |       |             | 9300         |       |              | 17500        | <b>16500</b> | 26000        | <b>24700</b> | 23100        |
| 90  |             |              |       |             |              | 2500  |             |              |       |             | 8100         |       |              | 16000        | <b>15000</b> |              | <b>22600</b> | 21000        |
| 95  |             |              |       |             |              |       |             |              |       |             | 7000         |       |              | 14800        | <b>13600</b> |              | <b>20700</b> | 19000        |
| 100 |             |              |       |             |              |       |             |              |       |             | 6300         |       |              |              |              |              | <b>18900</b> | 17200        |
| 105 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              | <b>11100</b> | <b>10000</b> | <b>17200</b> |
| 110 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              | <b>9100</b>  |              | <b>14000</b> |
| 115 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              | <b>12500</b> |
| 120 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              | <b>11200</b> |
| 125 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              | <b>10000</b> |
| 130 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              |              |
| 135 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              |              |
| 140 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              |              |
| 145 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              |              |
| 150 |             |              |       |             |              |       |             |              |       |             |              |       |              |              |              |              |              |              |

|     | MODEL 24    |               |       | MODEL S24   |               |        | MODEL 28    |               |              | MODEL S28   |               |              |       |
|-----|-------------|---------------|-------|-------------|---------------|--------|-------------|---------------|--------------|-------------|---------------|--------------|-------|
|     | BOOM LENGTH |               |       | BOOM LENGTH |               |        | BOOM LENGTH |               |              | BOOM LENGTH |               |              |       |
|     | 90          | 110           | 130   | 90          | 110           | 130    | 100         | 120           | 140          | 100         | 120           | 140          |       |
| 20  |             |               |       |             |               |        |             |               |              |             |               |              |       |
| 25  |             |               |       |             |               |        |             |               |              |             |               |              |       |
| 30  |             |               |       |             |               |        |             |               |              |             |               |              |       |
| 35  | 101800      | <b>100000</b> |       |             |               |        |             |               |              |             |               |              |       |
| 40  | 86700       | <b>85000</b>  | 82000 | 142000      | <b>138000</b> | 134000 | 116700      | <b>115000</b> |              | 146600      | <b>145800</b> |              |       |
| 45  | 76200       | <b>74500</b>  | 71600 | 120000      | <b>117000</b> | 114000 | 106700      | <b>105000</b> | 102000       | 135000      | <b>133400</b> | 130500       |       |
| 50  | 68300       | <b>66700</b>  | 63900 | 103500      | <b>100200</b> | 97000  | 97400       | <b>95700</b>  | 92700        | 123900      | <b>122400</b> | 119500       |       |
| 55  | 61600       | <b>60000</b>  | 57300 | 90500       | <b>87500</b>  | 84500  | 88900       | <b>87200</b>  | 84300        | 114800      | <b>113300</b> | 110500       |       |
| 60  | 56200       | <b>54700</b>  | 52100 | 79400       | <b>76500</b>  | 73600  | 81700       | <b>80000</b>  | 77100        | 106000      | <b>104500</b> | 101700       |       |
| 65  | 51500       | <b>50000</b>  | 47500 | 70500       | <b>67800</b>  | 65000  | 75500       | <b>73800</b>  | 71000        | 98300       | <b>96800</b>  | 94000        |       |
| 70  | 47100       | <b>45800</b>  | 43100 | 63400       | <b>60600</b>  | 58000  | 69900       | <b>68300</b>  | 65500        | 90800       | <b>89300</b>  | 94000        |       |
| 75  | 43700       | <b>42300</b>  | 39600 | 58800       | <b>55800</b>  | 53000  | 64800       | <b>63300</b>  | 60500        | 84500       | <b>83100</b>  | 80300        |       |
| 80  | 40500       | <b>39000</b>  | 36400 | 54200       | <b>51700</b>  | 49250  | 60400       | <b>59000</b>  | 56300        | 78900       | <b>77500</b>  | 74800        |       |
| 85  | 37400       | <b>36200</b>  | 33600 | 50700       | <b>47800</b>  | 45000  | 56500       | <b>55100</b>  | 52400        | 73900       | <b>72500</b>  | 69800        |       |
| 90  | 34600       | <b>33500</b>  | 30900 | 47000       | <b>44500</b>  | 42000  | 52700       | <b>51300</b>  | 48600        | 69200       | <b>67800</b>  | 65200        |       |
| 95  | 32000       | <b>31000</b>  | 28400 | 44000       | <b>41800</b>  | 39000  | 49000       | <b>47700</b>  | 45000        | 65000       | <b>63700</b>  | 61100        |       |
| 100 |             | <b>28600</b>  | 26000 |             | <b>38400</b>  | 36400  | 45600       | <b>44300</b>  | 41600        | 61100       | <b>59800</b>  | 57200        |       |
| 105 |             | <b>26300</b>  | 23800 |             | <b>36300</b>  | 33800  | 42300       | <b>41000</b>  | 38400        | 57300       | <b>56000</b>  | 53600        |       |
| 110 |             | <b>24100</b>  | 21600 |             | <b>33800</b>  | 31600  | 39200       | <b>37900</b>  | 35300        | 53900       | <b>52600</b>  | 50000        |       |
| 115 |             | <b>22000</b>  | 19500 |             | <b>31400</b>  | 29000  |             | <b>34900</b>  | 32500        |             | <b>49100</b>  | 46500        |       |
| 120 |             | <b>20000</b>  | 17600 |             | <b>29000</b>  | 26800  |             | <b>32000</b>  | 29700        |             | <b>46000</b>  | 43400        |       |
| 125 |             |               | 15800 |             |               | 25000  |             |               | <b>29500</b> | 27200       |               | <b>43000</b> | 40500 |
| 130 |             |               | 14100 |             |               | 22800  |             |               | <b>27000</b> | 24800       |               | <b>40000</b> | 37600 |
| 135 |             |               | 12500 |             |               | 21000  |             |               |              | 22400       |               |              | 34900 |
| 140 |             |               |       |             |               |        |             |               |              | 20200       |               |              | 32400 |
| 145 |             |               |       |             |               |        |             |               |              | 18200       |               |              | 30000 |
| 150 |             |               |       |             |               |        |             |               |              | 16500       |               |              | 27700 |

The above capacities are conservative ratings based on use of normal counterweight and with allowance for clam shell duty impact. Heavier loads may be handled by installing additional counterweight.

# CLYDE WHIRLEY *Advantages . . .*

## TURNTABLE



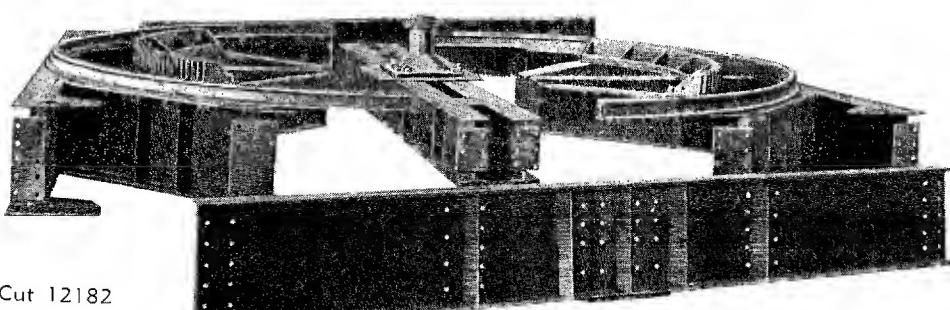
Cut 12181

Rigid turntable frame designed to withstand all combinations of loadings and is suitable for any type of mounting.

Frame sectionalized to facilitate shipment and easy re-assembly in the field.

Rail circle, for rotating carriages, is supported under entire length by heavy main side and diagonal beams.

Heavy duty 2-section rail circle accurately rolled to proper diameter and joined by splice bars for smooth operation.



VIEW SHOWING HOW  
TURN TABLE FRAME IS  
SECTIONALIZED.

Cut 12182

# CLYDE WHIRLEY *Advantages . . .*

## EQUALIZED WHEEL CARRIAGE ON ROTATING FRAME

Only Clyde's equalized wheel arrangement permits definite determination of wheel loads. Rotating structure

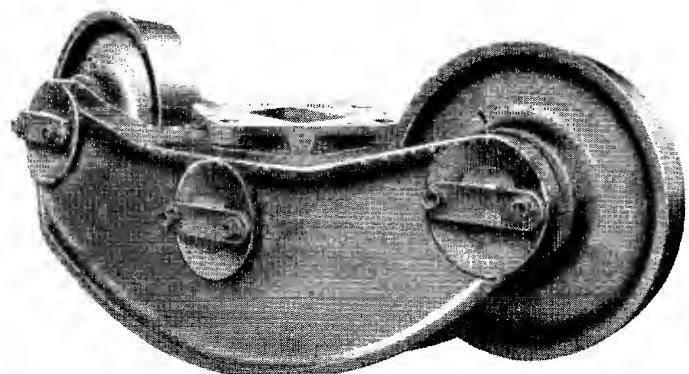
- with maximum load is always supported by at least four, heavy-duty roller bearing wheels.

Greater economy through less maintenance.

- Only eight wheels to service. Single wheel can be replaced if necessary without changing load distribution on wheels.

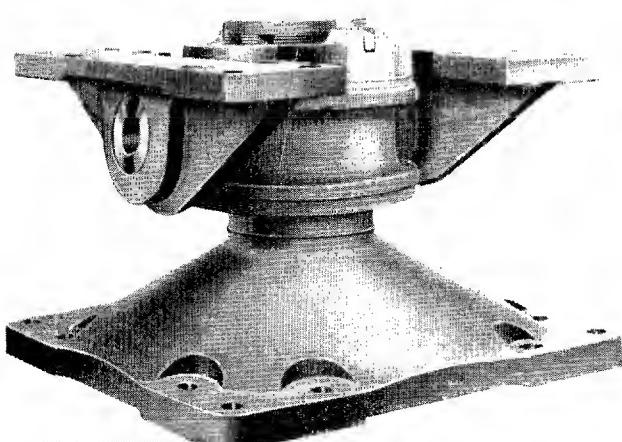
Tapered rims of wheels provide true rolling to

- rail circle diameter . . . no slippage of wheels . . . practically no wear.



Cut 12191

EQUALIZED WHEEL CARRIAGE



Cut 12192

CENTER PIN ASSEMBLY

## CENTER PIN ASSEMBLY

Self-aligning trunnions eliminate binding

- and bending stresses and assures smooth, easy swinging.

Tubular center pin accommodates electric

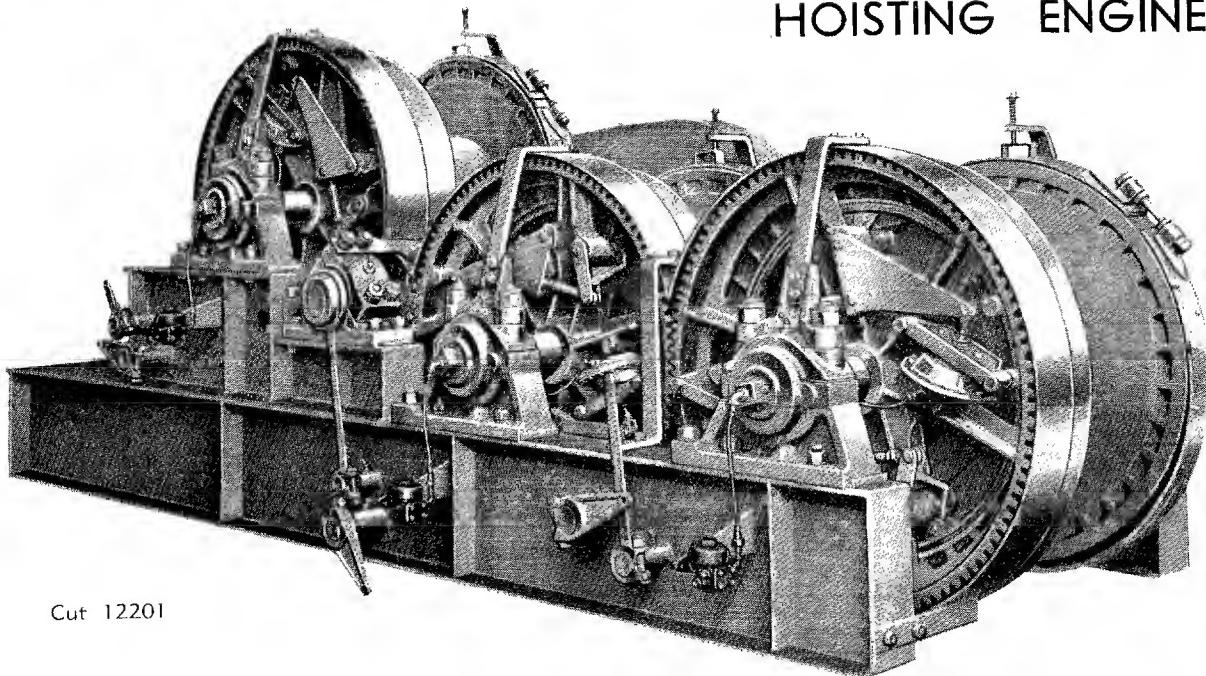
- wiring or steam piping between rotating structure and propel trucks.

Heavy screw collar with locking bar safely

- resists unseating of rotating structure if Whirley is overloaded.

# CLYDE WHIRLEY *Advantages . . .*

## HOISTING ENGINE



• Specially designed for Whirley service to afford better performance, easier operation and increased safety.

• Drums are narrow to provide better cable spooling.

• Hoist is narrowed to permit machinery to be shipped intact in cab to reduce field assembly time.

• Internal band friction clutches permit the use of double brake bands for extra safety and prolonged brake wear.

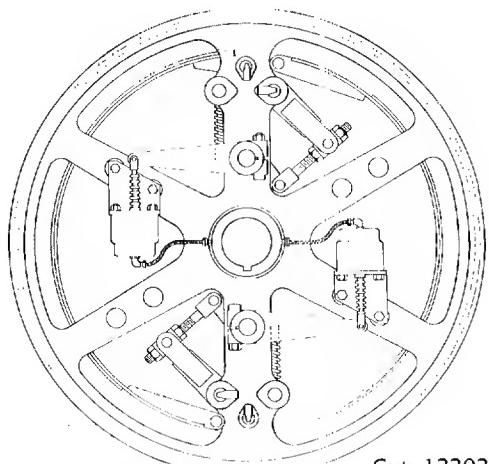
• Clutches operated by air through variable pressure valves.

Clyde band friction clutches are actuated so easily full capacity loads require practically no effort.

Internal bands allow larger friction diameters for greater efficiency and easier operation.

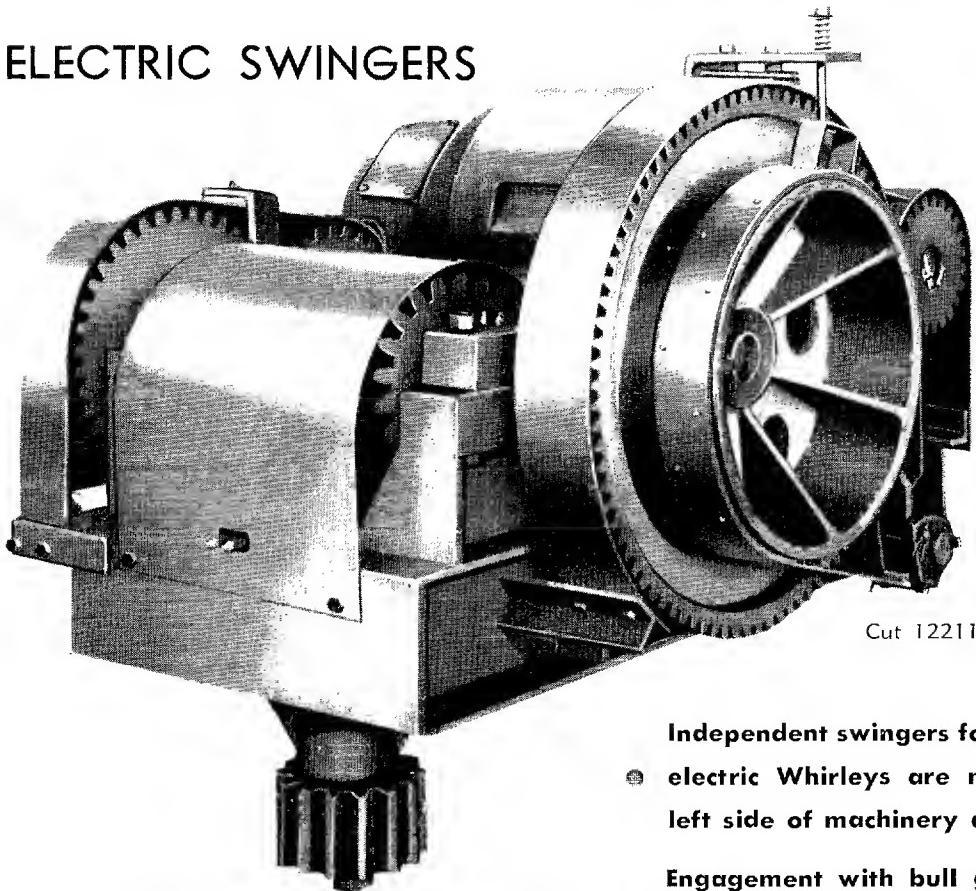
Clyde's internal bands allow outside friction surface to dissipate heat more readily than external bands.

Engagement and release is smooth and positive and allows perfect load control. Simple and fast adjustment.



# CLYDE WHIRLEY *Advantages . . .*

## ELECTRIC SWINGERS



Cut 12211

Independent swingers for electric and diesel-

- electric Whirleys are mounted forward at left side of machinery deck.

Engagement with bull gear is in region of

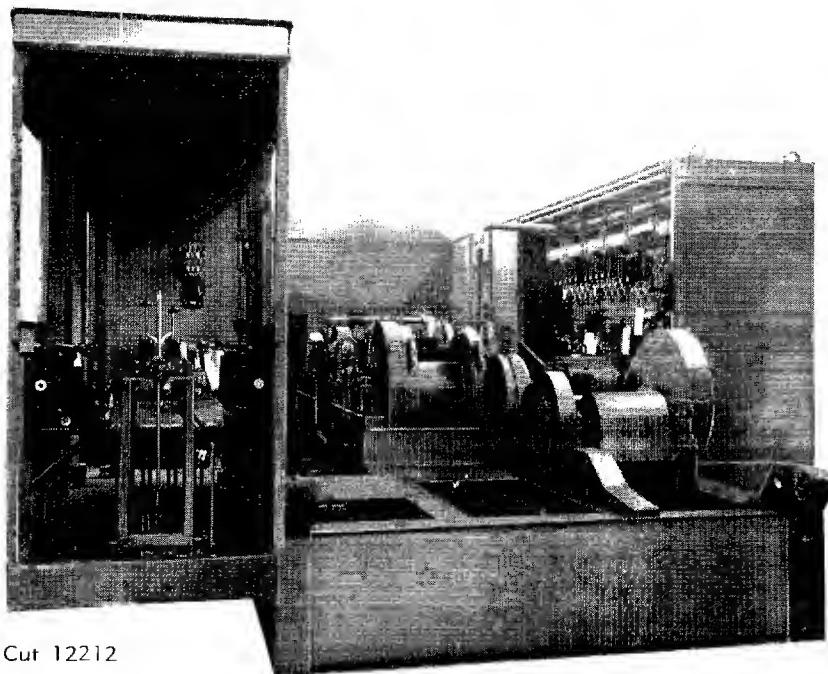
- maximum roller path loading to localize effect of rotational inertia.

All swinging operations regulated by re-

- versing drum type controller or full magnetic control.

Foot operated brake is banked to operator's position.

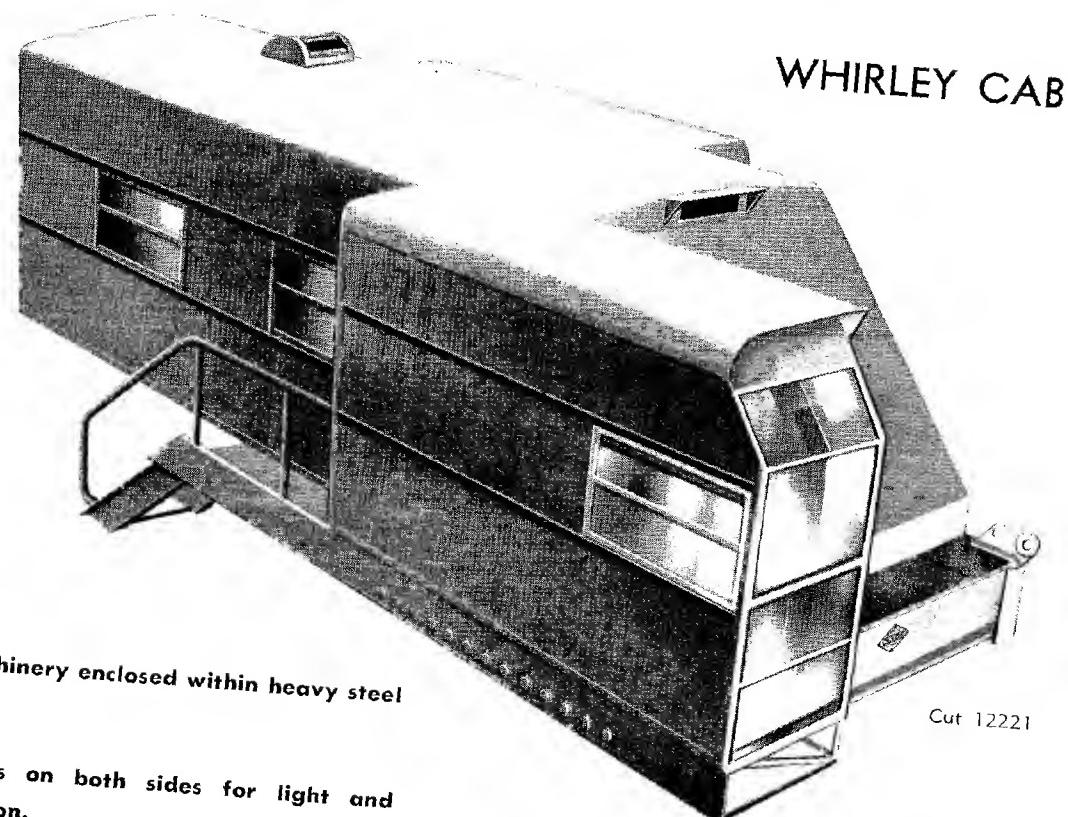
- Steam Whirleys have double cylinder, horizontal steam swingers operated through reversing throttle valve.



Cut 12212

VIEW OF MACHINERY CAB SHOWING ENGINES AND CONTROLS.

# CLYDE WHIRLEY *Advantages . . .*



Cut 12221

All machinery enclosed within heavy steel cab.

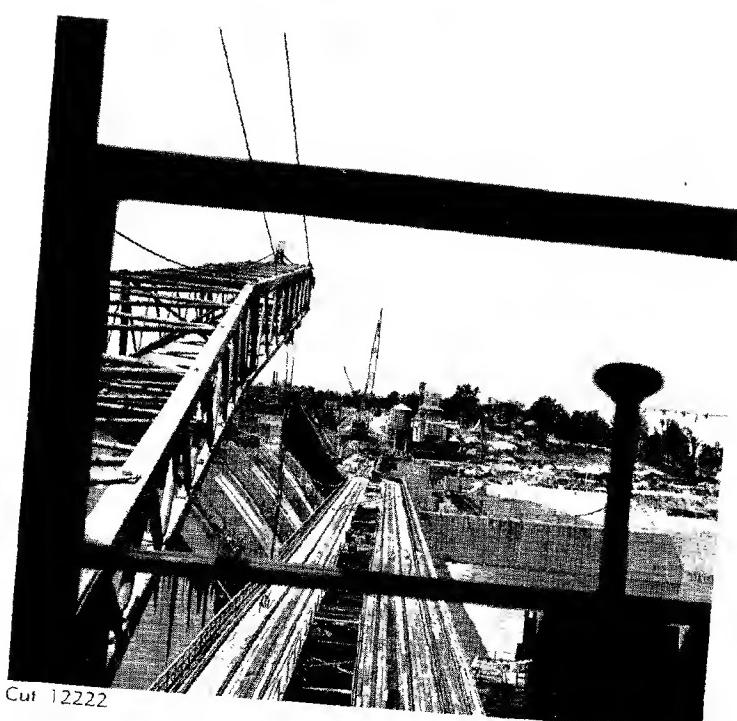
Windows on both sides for light and ventilation.

Operating machinery shipped intact in cab for economy in erection.

Operator's cab and electrical control cab easily field bolt to main cab.

Safety platform, stairs and railing are furnished at cab exit.

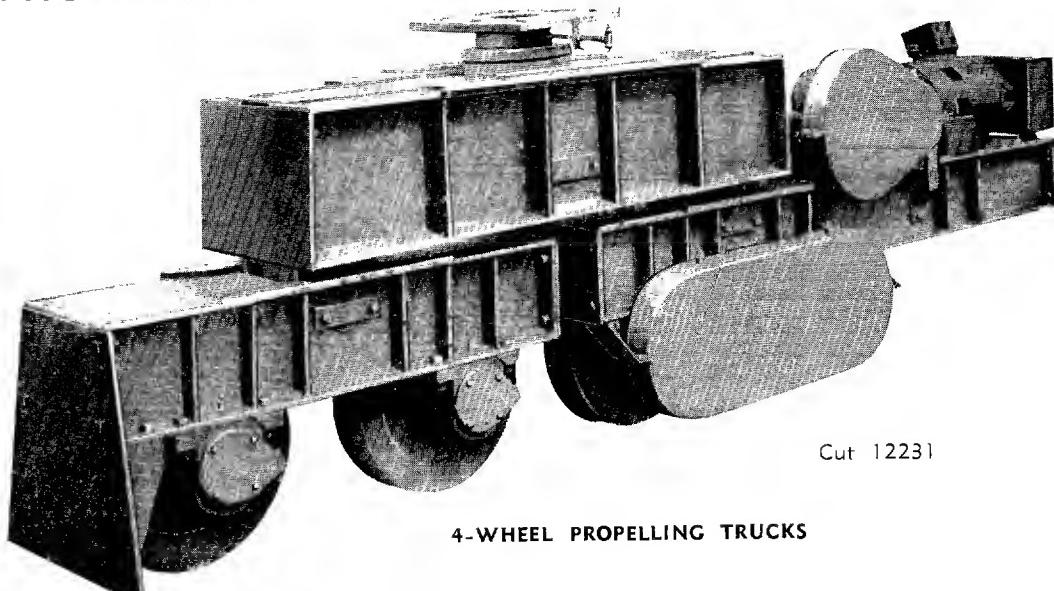
VIEW FROM OPERATOR'S POSITION SHOWING UNOBSTRUCTED VIEW OF BOOM AND LOAD TACKLE.



Cut 12222

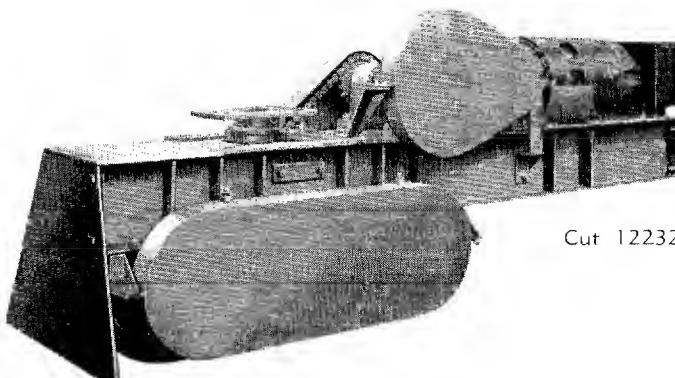
# CLYDE WHIRLEY *Advantages . . .*

## PROPELLING TRUCKS



Cut 12231

4-WHEEL PROPELLING TRUCKS



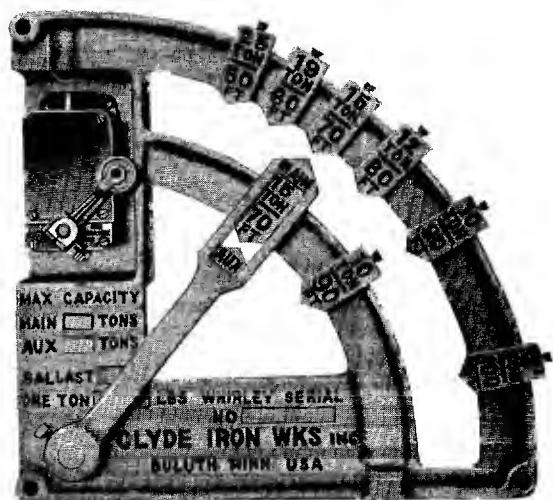
Cut 12232

2-WHEEL PROPELLING TRUCKS

## BOOM INDICATOR

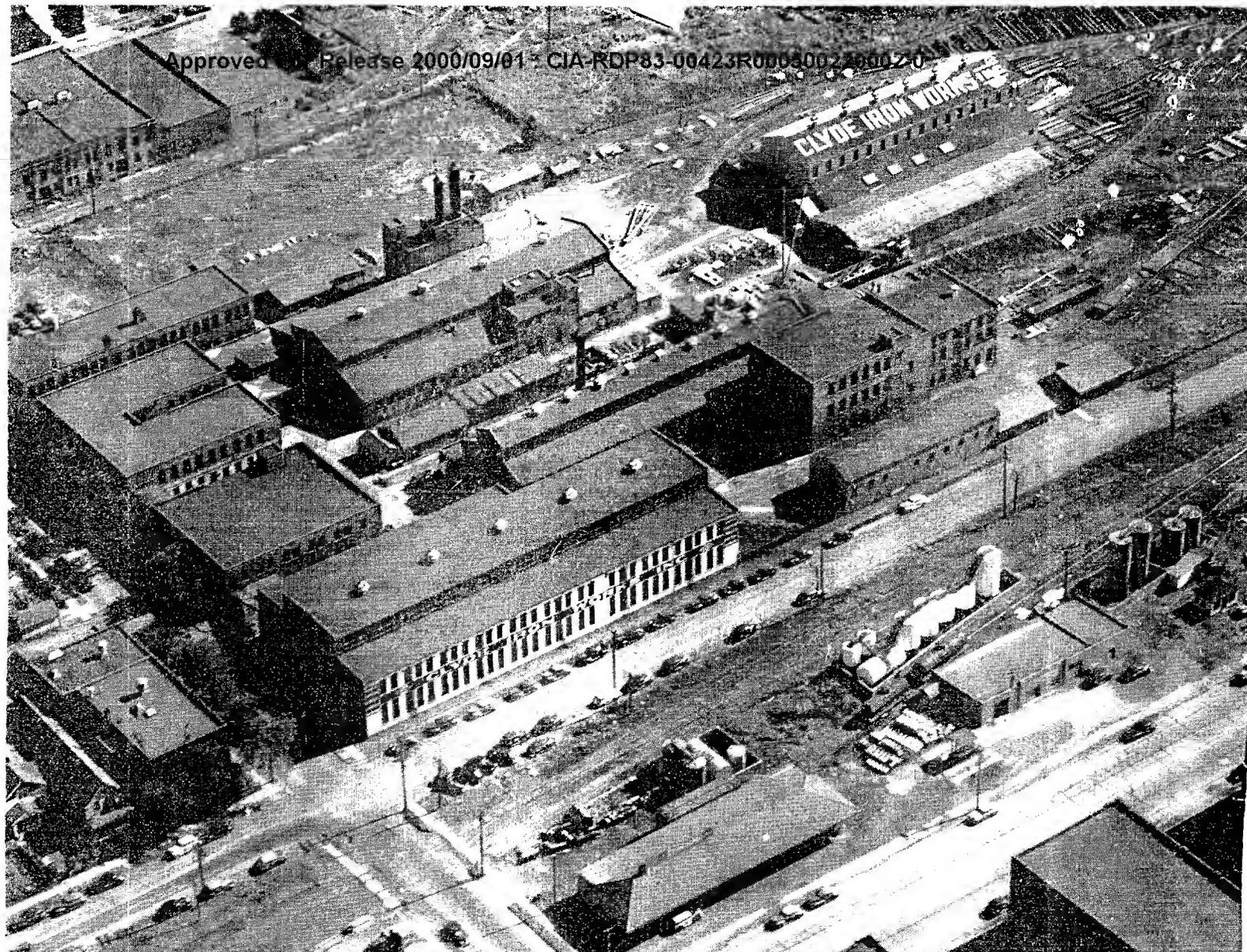
All Clyde Whirleys equipped with boom indicator.

Gives operator constant radius of boom load and capacity at that radius.



Cut 12233

BOOM INDICATOR



# CLYDE IRON WORKS, INC.

Duluth 1, Minnesota

MANUFACTURER OF

HOISTS . . DERRICKS . . WHIRLEYS . . CAR PULLERS . . HAND-CRANES . . BUILDERS TOWERS . . ROLLERS . . HAND POWERS  
DREDGE & DOCK EQUIP. . . LOGGING MCHY.

Subsidiary of Barium Steel Corp.